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<td>6:30 AM – 9:30 AM</td>
<td>Registration: STS University</td>
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<td>7:00 AM – 9:00 AM</td>
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<td>9:30 AM – 11:30 AM</td>
<td>STS University (courses repeated)</td>
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Course 1: Essentials of TAVR

Course Directors: Basel Ramlawi, Houston, TX, and Eric L. Sarin, Atlanta, GA

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the decision-making process for choosing a TAVR access point (transfemoral, direct aortic, subclavian artery, and transapical)
- State the salient differences in the deployment of balloon-expanded versus self-expanded devices
- Describe the various types of sheaths and guidewires used during the TAVR procedure and understand reasons for their use

Course 2: TEVAR and Aortic Arch Debranching Procedures

Course Directors: Ali Khoynezhad, Los Angeles, CA, and Ourania A. Preventza, Houston, TX

This course will review basic catheter and wire skills for TEVAR. Participants will have hands-on experience with thoracic stent grafts and intravascular ultrasound, as well as using vascular plugs from the brachial or femoral approach. Furthermore, surgical techniques for zone 0-2 aortic arch debranching procedures will be discussed in detail.
Learning Objectives
Upon completion of this activity, participants should be able to:

• Identify the most common catheters and wires for TEVAR
• Describe the deployment of commercially available stent grafts
• Explain the use of intravascular ultrasound and the use of the Amplatz plug for subclavian artery occlusion
• Describe the surgical techniques used in aortic arch debranching

Course 3: Mitral Valve Repair

Course Directors: Evelio Rodriguez, Nashville, TN, and Robert L. Smith, Plano, TX


In this course, participants will interact with experts in mitral valve repair. Hands-on stations will cover the role of 3D transesophageal echo (TEE), posterior leaflet resection, anterior leaflet and commissural repair techniques, non-resection techniques, and different chordal approaches. There will be a dedicated station for secondary mitral repair techniques, including ring selection, leaflet extension, and papillary techniques. Finally, participants will receive hands-on experience with percutaneous mitral valve repair technology.

Learning Objectives
Upon completion of this activity, participants should be able to:

• Discuss the importance of 3D TEE and mitral valve repair planning
• Describe different leaflet resection and non-resection approaches, in addition to different chordal techniques required for successful mitral valve repair
• Identify advance repair techniques for both primary and secondary mitral valve regurgitation
• List the procedural steps for percutaneous mitral valve repair technology deployment

Course 4: Valve-Sparing Aortic Root Replacement

Course Directors: Duke E. Cameron, Baltimore, MD, and Edward P. Chen, Atlanta, GA

This course will provide interactive, hands-on instruction of the surgical techniques and critical steps necessary for performing a successful valve-sparing aortic root replacement (VSRR).

Learning Objectives
Upon completion of this activity, participants should be able to:

• Describe the anatomy of the aortic root
• Summarize the technical steps necessary for a successful VSRR
• List different methods in choosing a graft size
• Discuss leaflet repair and annuloplasty methods
Course 5: Aortic Root Enlarging Procedures

Course Directors: David A. Fullerton, Aurora, CO, and S. Adil Husain, San Antonio, TX

This course will review the anatomic approaches and surgical techniques employed in performing aortic root enlarging procedures. Surgical strategies addressed will include Nicks, Manougian, Mavroudis, Ross Konno, upsizing the aortic root-Bentall type procedure, and myectomy/myotomy techniques.

Learning Objectives
Upon completion of this activity, participants should be able to:

- Identify the anatomy and appropriate surgical landmarks in the left ventricular outflow tract and aortic valve apparatus
- Describe the incision sites and overall surgical techniques for a variety of root enlargement strategies
- Discuss surgical pitfalls associated with each strategy and mechanisms by which to delineate options based upon patient and anatomic substrate

Course 6: ICU/ECHO

Course Directors: Haney Mallemat, Baltimore, MD, and Glenn J. R. Whitman, Baltimore, MD

This course will review the utilization of a focused ultrasound examination of the heart, pleural space, and central veins. Attendees will gain hands-on experience with ultrasound simulators and live models. Topics will include basic cardiac anatomy and physiology as visualized by three common transthoracic views: inferior vena cava evaluation to determine intravascular volume, pleural space pathology (e.g., pneumothorax and pleural effusions), and ultrasound techniques for central vein visualization and cannulation.

Learning Objectives
Upon completion of this activity, participants should be able to:

- Perform an echocardiographic parasternal, apical, and subcostal view of the heart
- Evaluate the inferior vena cava to help determine volume status
- Identify the pleura and sliding lungs
- Demonstrate how ultrasound can be used to safely accomplish subclavian and internal jugular venous cannulation

Course 7: VATS Lobectomy

Course Directors: Robert J. McKenna, Los Angeles, CA, and Shari L. Meyerson, Chicago, IL

Commercial Relationships: R. J. McKenna: Speakers Bureau/Honoraria, Ethicon, Inc

This course will review the indications, patient selection, technical steps, and recent advances for performance of lobectomy using video-assisted thoracic surgery (VATS). Participants will be able to perform VATS left upper lobectomies on porcine heart-lung blocks.
Learning Objectives
Upon completion of this activity, participants should be able to:

• Describe the indications and steps to perform VATS
• Discuss potential pitfalls and strategies for intraoperative troubleshooting to successfully achieve minimally invasive lobectomy
• Identify instruments and other technologies available for performance of minimally invasive lobectomy

Course 8: Advanced Open Esophageal and Tracheal Procedures

Course Directors: Sidharta P. Gangadharan, Boston, MA, and Thomas K. Varghese Jr, Salt Lake City, UT

This course will provide hands-on training for several esophageal anastomosis techniques, as well as airway anastomosis and repair. These advanced operative techniques are not frequently utilized in most general thoracic surgery practices, but competence in these techniques is important.

Learning Objectives
Upon completion of this activity, participants should be able to:

• Describe and perform the appropriate esophageal anastomosis technique depending on anatomic or other considerations
• Perform airway anastomoses and recognize technical pitfalls associated with the various techniques
• Identify the key steps of tracheobronchoplasty

Course 9: Chest Wall Resection and Adult Pectus Surgery

Course Directors: James M. Donahue, Baltimore, MD, and Mathew Thomas, Jacksonville, FL

In this hands-on course, participants will learn the various techniques for reconstruction of large chest wall defects after resection. Other highlights of the course will include stabilization of rib and sternal fractures using the most current reconstruction systems and minimally invasive repair of adult pectus excavatum defects.

Learning Objectives
Upon completion of this activity, participants should be able to:

• Perform rigid and semi-rigid reconstruction of chest wall defects after resection, including the ribs and sternum
• Demonstrate how to stabilize single and multiple rib fractures using rib fixation devices
• Use sternal fixation devices to stabilize the sternum
• Perform minimally invasive repair of adult pectus excavatum defects
Cardiac surgeons often encounter atrial fibrillation in patients referred for other cardiac surgical procedures. However, surgical ablation of atrial fibrillation continues to be undertreated at the time of cardiac surgery. Recent data have supported high rates of sinus rhythm restoration and a survival advantage for concomitant treatment of atrial fibrillation during cardiac surgery. Unfamiliarity with recommended lesion sets, energy sources, available devices, and techniques has resulted in an underutilization of the Maze procedure.

**Learning Objectives**

Upon completion of this activity, participants should be able to:

- Explain the different energy sources for performing the Maze procedure
- Discuss the available devices for surgical ablation and left atrial appendage ligation
- Perform the Maze IV procedure lesions based on different operative scenarios (mitral valve surgery, coronary artery bypass grafting, aortic valve replacement)
- Describe the Cut and Sew Maze procedure

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Leaflet reconstruction is very important for aortic valve repair: 80% of aortic valves with moderate-to-severe insufficiency have leaflet defects requiring reconstruction. Additionally, most patients with aortic stenosis, rheumatic disease, and endocarditis have irreparable leaflets. Reparable leaflet defects include leaflet prolapse, nodular retraction, holes, commissural ruptures, and extensive lateral fenestrations. Current techniques for leaflet reconstruction are evolving, but include central plication for prolapse, nodular release, pericardial patches and strips for holes and ruptures, and complete pericardial leaflet replacement for irreparable leaflets. In this course, each of these methods will be illustrated and practiced on porcine hearts.

**Learning Objectives**

Upon completion of this activity, participants should be able to:

- Assess leaflet pathology to select proper reconstructive techniques
- Perform aortic valve leaflet plication
- Demonstrate how to suture pericardial strips and patches into leaflets
- Perform complete pericardial leaflet replacement
Course 12: Advanced Aerodigestive Endoscopy

Course Director: Daniel L. Miller, Marietta, GA

COMMERCIAL RELATIONSHIPS: D. L. Miller: Consultant/Advisory Board, Ethicon, Inc, Bard, Inc

This course will provide hands-on experience with established and new endoscopic procedures for benign and malignant aerodigestive diseases. Endobronchial ultrasound (EBUS) and endoscopic ultrasound (EUS) have attained firm places in the endoscopic diagnostic and staging armamentarium of mediastinal lymph nodes and esophageal cancer, respectively. Electromagnetic navigation bronchoscopy (ENB) is an interesting technology aimed at facilitating the endoscopic biopsy of peripheral lung lesions. Airway and esophageal stenting are important tools for the palliation of malignant disease and the treatment of benign disease in general thoracic surgical practice. New peroral endoscopic procedures (POEM) are increasing in popularity for achalasia, as are ablation techniques for Barrett’s esophagus. Endoscopic mucosal resection (EMR) combined with ablation techniques is becoming the procedure of choice for small, localized esophageal tumors.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Discuss how EBUS and EUS are used in mediastinal and esophageal staging, respectively
- Describe potential indications and limitations of ENB
- Identify potential pitfalls and ways to avoid complications during airway and esophageal stent insertion
- Discuss the role of EMR for locally advanced esophageal cancers
- Describe the indications of endoscopic ablative techniques for Barrett’s esophagus
- State the technical aspects and potential complications of the POEM procedure
Course 13: Adult Congenital Pulmonary Valve Replacement

**Course Director:** Patrick I. McConnell, Columbus, OH

**COMMERCIAL RELATIONSHIPS**  P. I. McConnell: Other Research Support, Thoratec Corporation; Speakers Bureau/Honoraria, CorMatrix; Consultant/Advisory Board, Clear Catheter, Inc

Pulmonary valve replacement (PVR) is commonly required in adolescent and adult patients after earlier transannular repair of tetralogy of Fallot (TOF). The reconstructed right ventricular outflow tract (RVOT) is anatomically diverse, commonly presenting with mixed pulmonary insufficiency and stenosis. There are key concepts and strategies at the time of PVR to deal with potentially unrecognized RVOT obstruction, augment typically distorted main and branch pulmonary arteries, and allow for the optimal size and position of the valve prosthesis—all in an effort to minimize the future need for surgical PVR in these young adults and adolescents.

**Learning Objectives**

Upon completion of this activity, participants should be able to:

- Identify and recognize the complex anatomic relationships that can produce residual RVOT obstruction in adolescent and adult patients after transannular patch repair of TOF
- Demonstrate the surgical approaches and materials to augmenting the RVOT, main pulmonary, and branch pulmonary arteries prior to PVR
- Discuss the important anatomic characteristics and sizing of various stented valve prostheses and the potential impact on later percutaneous interventions and valve-in-valve PVR in adolescents and young adults
- Demonstrate the correct positioning of the valve prosthesis within the RVOT, avoiding residual main and branch pulmonary artery obstruction and optimizing the potential for percutaneous valve-in-valve PVR in the future

Course 14: TSDA Cardiac Surgery Simulation Curriculum*

**Room 122ABC and Exhibit Hall 6**

**Course Directors:** Richard H. Feins, Chapel Hill, NC, and Nabush A. Mokadam, Seattle, WA

**COMMERCIAL RELATIONSHIPS**  R. H. Feins: Ownership Interest, KindHeart, Inc; N. A. Mokadam: Consultant/Advisory Board, Thoratec Corporation, HeartWare, Inc, SynCardia Systems, Inc, St Jude Medical

This course is intended for thoracic residency faculty who are interested in adopting the TSDA Cardiac Surgery Simulation Curriculum. Attendees will use Component Task Simulators to learn how to conduct the simulation for each of the six modules (cardiopulmonary bypass, coronary artery bypass grafting, aortic valve replacement, massive air embolism, acute intraoperative aortic dissection, and sudden deterioration of cardiac function) that make up the curriculum. The program is not intended to provide training in how to do the procedures identified, but rather how to teach them using the curriculum.

**Learning Objectives**

Upon completion of this activity, participants should be able to:

- Perform simulation-based education in each of the six modules
- Assess performance of a trainee using the developed assessment tools
- Design and use the Component Task Simulators for each module

*This course runs once from 7:00 AM to 10:30 AM.